

AMENDMENTS TO THE CLAIMS

This Listing of Claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claim 1 (Currently Amended): An information recording / reading head for recording information onto tracks of an information recording medium having the tracks with a track pitch of P, or reading information recorded on the tracks of the information recording medium,

the information / reading head comprising:

a support portion; and

four or more recording / reading elements which are supported by the support portion and which record information onto the tracks of the information recording medium or which read information recorded on the tracks of the information recording medium,

at least four of the recording / reading elements being arranged on the support portion such that if the positions of recording / reading end portions of the at least four recording / reading elements are A, B, C, and D, a parallelogram is formed in which a line segment AB connecting A and B is parallel to a line segment CD connecting C and D, and a line segment AC connecting A and C is parallel to a line segment BD connecting B and D, and that if a ratio of the length of the line segment AB to the length of the line segment AC is η and the height of the parallelogram is H when the line segment AC is regarded as the base, the following relationship is satisfied:

$$H = \eta \cdot P_z$$

wherein the positions of recording / reading end portions of the recording / reading elements do not form a square lattice.

Claim 2 (Currently Amended): An information recording / reading head for recording information onto tracks of an information recording medium having the tracks with a track pitch of P, or reading information recorded on the tracks of the information recording medium,

the information recording / reading head comprising:

a support portion; and

four or more recording / reading elements which are supported by the support portion and which record information onto the tracks of the information recording medium or which read information recorded on the tracks of the information recording medium,

at least four of the recording / reading elements being arranged on the support portion such that if the positions of recording / reading end portions of the at least four recording / reading elements are A, B, C, and D, a parallelogram is formed in which a line segment AB connecting A and B is parallel to a line segment CD connecting C and D, and a line segment AC connecting A and C is parallel to a line segment BD connecting B and D, and that if the length of the line segment AC is L and an angle ACD made by the line segment AC and the line segment CD is α , the following relationship is satisfied:

$$L \cdot \sin \alpha = P,$$

wherein the positions of recording / reading end portions of the recording / reading elements do not form a square lattice.

Claim 3 (Currently Amended): An information recording / reading head for recording information onto tracks of an information recording medium having the tracks with a track pitch of P, or reading information recorded on the tracks of the information

recording medium,

the information recording / reading head comprising:

a support portion; and

four or more recording / reading elements which are supported by the support portion and which record information onto the tracks of the information recording medium or which read information recorded on the tracks of the information recording medium,

at least four of the recording / reading elements being arranged on the support portion such that if the positions of recording / reading end portions of the at least four recording / reading elements are A, B, C, and D, a parallelogram is formed in which a line segment AB connecting A and B is parallel to a line segment CD connecting C and D, and a line segment AC connecting A and C is parallel to a line segment BD connecting B and D, and that if a ratio of the length of the line segment AB to the length of the line segment AC is η and the height of the parallelogram is H when the line segment AC is regarded as a base, the following relationship is satisfied:

$$H = m \cdot \eta \cdot P \text{ (wherein } m \text{ is a natural number),}$$

wherein the positions of recording / reading end portions of the recording / reading elements do not form a square lattice.

Claim 4 (Currently Amended): An information recording / reading head for recording information onto tracks of an information recording medium having the tracks with a track pitch of P, or reading information recorded on the tracks of the information recording medium,

the information recording / reading head comprising:

a support portion; and

four or more recording / reading elements which are supported by the support portion and which record information onto the tracks of the information recording medium or which read information recorded on the tracks of the information recording

medium,

at least four of the recording / reading elements being arranged on the support portion such that if the positions of recording / reading end portions of the at least four recording / reading elements are A, B, C, and D, a parallelogram is formed in which a line segment AB connecting A and B is parallel to a line segment CD connecting C and D, and a line segment AC connecting A and C is parallel to a line segment BD connecting B and D, and that if the length of the line segment AC is L and an angle ACD made by the line segment AC and the line segment CD is α , the following relationship is satisfied:

$$L \cdot \sin \alpha = m \cdot P \text{ (wherein } m \text{ is a natural number),}$$

wherein the positions of recording / reading end portions of the recording / reading elements do not form a square lattice.

Claim 5 (Currently Amended): The information recording / reading head according to claim 1, wherein the at least four recording / reading elements are arranged on the support portion such that if the length of the line segment AC is L and the line segment CD is K, the following relationship is satisfied,

$$(n^2 \cdot K^2/L^2) + (H^2/K^2) \neq 1 \text{ (n is a natural number).}$$

Claims 6-9 (Canceled).

Claim 10 (Original): The information recording / reading head according to claim 1, wherein the recording / reading elements are probes.

Claims 11-21 (Canceled).

Claim 22 (New): The information recording / reading head according to claim 1, wherein two of the at least four recording / reading elements having the end portions

A, B, C, and D are configured for recording / reading data to / from a same first track of the information recording medium and the other two of the at least four recording / reading elements are configured for recording / reading data to / from a same second track of the information recording medium which is different than the first track.

Claim 23 (New): The information recording / reading head according to claim 2, wherein two of the at least four recording / reading elements having the end portions A, B, C, and D are configured for recording / reading data to / from a same first track of the information recording medium and the other two of the at least four recording / reading elements are configured for recording / reading data to / from a same second track of the information recording medium which is different than the first track.

Claim 24 (New): The information recording / reading head according to claim 3, wherein two of the at least four recording / reading elements having the end portions A, B, C, and D are configured for recording / reading data to / from a same first track of the information recording medium and the other two of the at least four recording / reading elements are configured for recording / reading data to / from a same second track of the information recording medium which is different than the first track.

Claim 25 (New): The information recording / reading head according to claim 4, wherein two of the at least four recording / reading elements having the end portions A, B, C, and D are configured for recording / reading data to / from a same first track of the information recording medium and the other two of the at least four recording / reading elements are configured for recording / reading data to / from a same second track of the information recording medium which is different than the first track.